

## Zadanie 1

Urządzenia : 2 komputery, telefon

Pierwszy laptop połączony z telefonem i zrobiony jako Hot Spot nazwa sieci: OpenPwrWifi.

Przygotowanie hot spota

polecenie : netsh wlan set hostednetwork mode=allow ssid=OpenPwrWifi

netsh wlan start hostednetwork

A następnie udostępnienie sieci z telefonu dla OpenPwrWifi

Drugi laptop skonfigurowany na tryb monitor mode za pomocą komend

```
sudo ifconfig wlan0 down
sudo iwconfig wlan0 mode monitor
sudo ifconfig wlan0 up
sudo iwconfig wlan0 chan 6
sudo tcpdump -i wlan0 -n
```

Fragment zrzutu:

```
18:02:00.910463 1.0 Mb/s 2437 MHz 11b -73dBm signal antenna 3 Beacon (UPC9011089) [1.0* 2.0* 5.5* 11.0* 9.0 18.0 36.0 54.0 Mbit] ESS CH: 6, PRIVACY
18:02:00.913569 1.0 Mb/s 2437 MHz 11b -42dBm signal antenna 3 Acknowledgment
RA:44:80:eb:7a:a9:cf
18:02:00.915987 1.0 Mb/s 2437 MHz 11b -70dBm signal antenna 3 Probe Response (OpenPwrWifi)
[1.0* 2.0* 5.5* 11.0* 6.0 9.0 12.0 18.0 Mbit] CH: 4, PRIVACY
18:02:00.919604 1.0 Mb/s 2437 MHz 11b -80dBm signal antenna 3 Acknowledgment
RA:00:12:2a:eb:a6:78
18:02:00.923254 1.0 Mb/s 2437 MHz 11b -74dBm signal antenna 3 Probe Response (UPC9011089)
[1.0* 2.0* 5.5* 11.0* 9.0 18.0 36.0 54.0 Mbit] CH: 6, PRIVACY
18:02:00.923565 1.0 Mb/s 2437 MHz 11b -80dBm signal antenna 3 Acknowledgment
RA:38:43:7d:c8:00:0c
18:02:00.927234 1.0 Mb/s 2437 MHz 11b -74dBm signal antenna 3 Probe Response (UPC9011089)
[1.0* 2.0* 5.5* 11.0* 9.0 18.0 36.0 54.0 Mbit] CH: 6, PRIVACY
18:02:00.927550 1.0 Mb/s 2437 MHz 11b -80dBm signal antenna 3 Acknowledgment
RA:38:43:7d:c8:00:0c
18:02:00.931255 1.0 Mb/s 2437 MHz 11b -75dBm signal antenna 3 Probe Response (UPC9011089)
[1.0* 2.0* 5.5* 11.0* 9.0 18.0 36.0 54.0 Mbit] CH: 6, PRIVACY
18:02:00.934886 1.0 Mb/s 2437 MHz 11b -69dBm signal antenna 3 Probe Response
(INTRANET-WRO1) [1.0* 2.0* 5.5* 11.0* 6.0* 9.0 12.0* 18.0 Mbit] CH: 6, PRIVACY
18:02:00.940955 1.0 Mb/s 2437 MHz 11b -42dBm signal antenna 3 Beacon (OpenPwrWifi) [1.0* 2.0* 5.5* 11.0* 6.0 9.0 12.0 18.0 Mbit] ESS CH: 4, PRIVACY
18:02:00.941560 1.0 Mb/s 2437 MHz 11b -77dBm signal antenna 3 Acknowledgment
RA:06:18:d6:cd:85:02
18:02:00.946148 1.0 Mb/s 2437 MHz 11b -58dBm signal antenna 3 Probe Response
(Freshpoint_WiFi) [1.0* 2.0* 5.5* 11.0* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY
```

18:02:00.949737 1.0 Mb/s 2437 MHz 11b -59dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:00.950050 1.0 Mb/s 2437 MHz 11b -43dBm signal antenna 3 Acknowledgment  
RA:68:7f:74:2f:54:f7  
18:02:00.951568 1.0 Mb/s 2437 MHz 11b -53dBm signal antenna 3 Beacon (Freshpoint\_WiFi) [1.0\*  
2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] ESS CH: 6, PRIVACY  
18:02:00.954042 1.0 Mb/s 2437 MHz 11b -67dBm signal antenna 3 Probe Response (AUTORSKA)  
[1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] CH: 6  
18:02:00.960391 1.0 Mb/s 2437 MHz 11b -72dBm signal antenna 3 Beacon (AndroidAP) [1.0\* 2.0\*  
5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] ESS CH: 6, PRIVACY  
18:02:00.971171 1.0 Mb/s 2437 MHz 11b -69dBm signal antenna 3 Probe Response  
(INTRANET-WRO1) [1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] CH: 6, PRIVACY  
18:02:00.973106 1.0 Mb/s 2437 MHz 11b -68dBm signal antenna 3 Probe Response (AUTORSKA)  
[1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] CH: 6  
18:02:00.985056 1.0 Mb/s 2437 MHz 11b -81dBm signal antenna 3 Beacon (rodzice) [1.0\* 2.0\* 5.5  
11.0 18.0 24.0 36.0 54.0 Mbit] ESS CH: 8, PRIVACY  
18:02:00.988791 1.0 Mb/s 2437 MHz 11b -67dBm signal antenna 3 Beacon (AUTORSKA) [1.0\* 2.0\*  
5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] ESS CH: 6  
18:02:00.991154 1.0 Mb/s 2437 MHz 11b -54dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:00.993127 1.0 Mb/s 2437 MHz 11b -73dBm signal antenna 3 Probe Response (HUAWEI P9  
lite 2017) [1.0\* 2.0\* 5.5\* 6.0 9.0 11.0\* 12.0 18.0 Mbit] CH: 6, PRIVACY  
18:02:00.997516 1.0 Mb/s 2437 MHz 11b -72dBm signal antenna 3 Probe Response (HUAWEI P9  
lite 2017) [1.0\* 2.0\* 5.5\* 6.0 9.0 11.0\* 12.0 18.0 Mbit] CH: 6, PRIVACY  
18:02:00.999371 1.0 Mb/s 2437 MHz 11b -54dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.001873 1.0 Mb/s 2437 MHz 11b -77dBm signal antenna 3 Beacon (HUAWEI P9 lite 2017)  
[1.0\* 2.0\* 5.5\* 6.0 9.0 11.0\* 12.0 18.0 Mbit] ESS CH: 6, PRIVACY  
18:02:01.003295 1.0 Mb/s 2437 MHz 11b -59dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.004670 1.0 Mb/s 2437 MHz 11b -22dBm signal antenna 3 Probe Request () [1.0 2.0 5.5  
11.0 Mbit]  
18:02:01.006761 1.0 Mb/s 2437 MHz 11b -69dBm signal antenna 3 Probe Response (AndroidAP)  
[1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.012861 1.0 Mb/s 2437 MHz 11b -73dBm signal antenna 3 Beacon (UPC9011089) [1.0\* 2.0\*  
5.5\* 11.0\* 9.0 18.0 36.0 54.0 Mbit] ESS CH: 6, PRIVACY  
18:02:01.014875 1.0 Mb/s 2437 MHz 11b -69dBm signal antenna 3 Beacon () [1.0\* 2.0\* 5.5\* 11.0\*  
6.0\* 9.0 12.0\* 18.0 Mbit] ESS CH: 6, PRIVACY  
18:02:01.018399 1.0 Mb/s 2437 MHz 11b -59dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.021054 1.0 Mb/s 2437 MHz 11b -59dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.024455 1.0 Mb/s 2437 MHz 11b -57dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.026187 1.0 Mb/s 2437 MHz 11b -58dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.028105 1.0 Mb/s 2437 MHz 11b -59dBm signal antenna 3 Probe Response  
(Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.028421 1.0 Mb/s 2437 MHz 11b -28dBm signal antenna 3 Acknowledgment  
RA:68:7f:74:2f:54:f7

18:02:01.037152 1.0 Mb/s 2437 MHz 11b -67dBm signal antenna 3 Probe Response (INTRANET-WRO1) [1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] CH: 6, PRIVACY  
18:02:01.037282 12.0 Mb/s 2437 MHz 11g -83dBm signal antenna 3 Acknowledgment  
RA:bc:9f:ef:31:13:4d  
18:02:01.039077 1.0 Mb/s 2437 MHz 11b -70dBm signal antenna 3 Probe Response (AUTORSKA) [1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] CH: 6  
18:02:01.046320 1.0 Mb/s 2437 MHz 11b -56dBm signal antenna 3 Probe Response (Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.049490 1.0 Mb/s 2437 MHz 11b -56dBm signal antenna 3 Probe Response (Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.052839 1.0 Mb/s 2437 MHz 11b -56dBm signal antenna 3 Beacon (Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] ESS CH: 6, PRIVACY  
18:02:01.054303 1.0 Mb/s 2437 MHz 11b -55dBm signal antenna 3 Probe Response (Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.059046 1.0 Mb/s 2437 MHz 11b -58dBm signal antenna 3 Probe Response (Freshpoint\_WiFi) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] CH: 6, PRIVACY  
18:02:01.087463 1.0 Mb/s 2437 MHz 11b -79dBm signal antenna 3 Beacon (rodzice) [1.0\* 2.0\* 5.5\* 11.0 18.0 24.0 36.0 54.0 Mbit] ESS CH: 8, PRIVACY  
18:02:01.091219 1.0 Mb/s 2437 MHz 11b -68dBm signal antenna 3 Beacon (AUTORSKA) [1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] ESS CH: 6  
18:02:01.097278 1.0 Mb/s 2437 MHz 11b -66dBm signal antenna 3 Probe Response (INTRANET-WRO1) [1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] CH: 6, PRIVACY  
18:02:01.099209 1.0 Mb/s 2437 MHz 11b -68dBm signal antenna 3 Probe Response (AUTORSKA) [1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] CH: 6  
18:02:01.099527 1.0 Mb/s 2437 MHz 11b -33dBm signal antenna 3 Acknowledgment  
RA:06:18:d6:cd:85:02  
18:02:01.112487 1.0 Mb/s 2437 MHz 11b -82dBm signal antenna 3 Beacon (NETIASPOT-EBA670) [1.0\* 2.0\* 5.5\* 11.0\* Mbit] ESS CH: 6, PRIVACY  
18:02:01.115521 1.0 Mb/s 2437 MHz 11b -86dBm signal antenna 3 Beacon (UPC9011089) [1.0\* 2.0\* 5.5\* 11.0\* 9.0 18.0 36.0 54.0 Mbit] ESS CH: 6, PRIVACY  
18:02:01.117526 1.0 Mb/s 2437 MHz 11b -73dBm signal antenna 3 Beacon () [1.0\* 2.0\* 5.5\* 11.0\* 6.0\* 9.0 12.0\* 18.0 Mbit] ESS CH: 6, PRIVACY  
18:02:01.127323 1.0 Mb/s 2437 MHz 11b -79dBm signal antenna 3 Probe Response (rodzice) [1.0\* 2.0\* 5.5 11.0 18.0 24.0 36.0 54.0 Mbit] CH: 8, PRIVACY  
18:02:01.129939 1.0 Mb/s 2437 MHz 11b -79dBm signal antenna 3 Probe Response (rodzice) [1.0\* 2.0\* 5.5 11.0 18.0 24.0 36.0 54.0 Mbit] CH: 8, PRIVACY  
18:02:01.165253 1.0 Mb/s 2437 MHz 11b -69dBm signal antenna 3 Beacon (AndroidAP) [1.0\* 2.0\* 5.5\* 11.0\* 18.0 24.0 36.0 54.0 Mbit] ESS CH: 6, PRIVACY  
18:02:01.187594 1.0 Mb/s 2437 MHz 11b -79dBm signal antenna 3 Acknowledgment  
RA:1c:67:58:91:18:1f

Logi z wireshark-a z komputera HotSpota

466	132.190307	169.254.54.203	255.255.255.255	DHCP	342 DHCP Discover - Transaction ID 0x1a0d7d/d
467	136.462322	fe80::c9a7:546e:a35...	ff02::1:2	DHCPv6	148 Solicit XID: 0xa9bab5 CID: 0001000118d6797150465dddc01a
468	164.294078	fe80::c9a7:546e:a35...	ff02::1:3	LLMNR	84 Standard query 0x870d A wpad
469	164.294190	169.254.54.203	224.0.0.252	LLMNR	64 Standard query 0x870d A wpad
470	164.460398	169.254.54.203	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
471	164.494268	169.254.54.203	169.254.255.255	NBNS	92 Name query NB WPAD<00>
472	165.244140	169.254.54.203	169.254.255.255	NBNS	92 Name query NB WPAD<00>
473	165.994021	169.254.54.203	169.254.255.255	NBNS	92 Name query NB WPAD<00>
474	167.460150	169.254.54.203	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
475	170.460225	169.254.54.203	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
476	173.470505	169.254.54.203	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
477	175.959921	169.254.54.203	239.255.255.250	SSDP	216 M-SEARCH * HTTP/1.1
478	176.470375	169.254.54.203	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1
479	176.960438	169.254.54.203	239.255.255.250	SSDP	216 M-SEARCH * HTTP/1.1
480	177.961388	169.254.54.203	239.255.255.250	SSDP	216 M-SEARCH * HTTP/1.1
481	178.961465	169.254.54.203	239.255.255.250	SSDP	216 M-SEARCH * HTTP/1.1
482	179.470461	169.254.54.203	239.255.255.250	SSDP	175 M-SEARCH * HTTP/1.1

Nie wykryto osób trzecich podłączonych do sieci , nie wykryto innych żądań HTTP takicha jak

```
User-Agent: Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/69.0.3497.100 Safari/537.36\r\n
Accept: image/webp,image/apng,image/*,*/*;q=0.8\r\n
Referer: http://ki.pwr.edu.pl/gebala/dyd/\r\n
Accept-Encoding: gzip, deflate\r\n
Accept-Language: pl-PL,pl;q=0.9,en-US;q=0.8,en;q=0.7\r\n
Cookie: dydcounter=msgc; jftt2018counter=msgc; _ga=GA1.3.1858612984.1538421227; hack=msg; PHPSESSID=5cjs84bfc6hmgbu7obmj27uah2; _gid=GA1.3.1858612984.1538421227\r\n
[...]
```

Najczęstszy protokół to SSDP

Trasa pakietu :

```
C:\Users\Administrator>tracert 156.17.7.22

Śledzenie trasy do informatyka.im.pwr.wroc.pl [156.17.7.22]
z maksymalną liczbą 30 przeskokuw:

  1      1 ms      1 ms      1 ms    internet.domowy [192.168.0.1]
  2      *          *          *        Upłynął limit czasu żądania.
  3      *          *          *        Upłynął limit czasu żądania.
  4     36 ms     25 ms     51 ms    10.220.92.122
  5     37 ms     45 ms     41 ms    wawgro-i1-BE6-309.plusnet.pl [212.2.102.201]
  6     74 ms     52 ms     47 ms    wawgro-i2-BE12.plusnet.pl [212.2.102.162]
  7     49 ms     69 ms     42 ms    wawbal-i2-BE9.plusnet.pl [212.2.102.178]
  8     43 ms     55 ms     37 ms    213-17-183-177.static.ip.netia.com.pl [213.17.183.177]
  9     66 ms     62 ms     83 ms    jawoh001rt09.inetia.pl [83.238.251.47]
 10     58 ms     55 ms     52 ms    83.238.248.195
 11      *          *          *        Upłynął limit czasu żądania.
 12     77 ms     61 ms     59 ms    156.17.250.215
 13     70 ms     58 ms     61 ms    rolnik2-karkonosz.wask.wroc.pl [156.17.254.112]
 14     69 ms     70 ms     76 ms    wazniak-rolnik.wask.wroc.pl [156.17.254.140]
 15     70 ms     61 ms     76 ms    z-wask2-do-pwr2.pwrnet.pwr.wroc.pl [156.17.18.24]
 16     68 ms     66 ms     69 ms    156.17.33.1
 17     70 ms     65 ms     69 ms    informatyka.im.pwr.wroc.pl [156.17.7.22]

Śledzenie zakończone.
```